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Role of *Pradhamana Nasya* and *Trayodashanga Kwatha* in the management of *Dushta Pratishyaya* with special reference to chronic sinusitis

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Abstract

Dushta Pratishyaya is the chronic stage of *Pratishyaya*, which occurs due to neglect or improper management of the disease *Pratishyaya*. In modern science, chronic sinusitis can be correlated with *Dushta Pratishyaya* on the basis of the signs, symptoms, complications, and prognosis. Changing lifestyles, rapid urbanization, and the increase in cases of antibiotic resistance are responsible for the rise in the prevalence of sinusitis. In the present clinical study, 37 patients were registered and were randomly divided into three groups: A, B, and C; of the 37 patients, 31 completed the full course of treatment. In group A, *Trayodashanga Kwatha* with *Madhu* was given orally; in group B, *Pradhamana Nasya* with *Trikatu* + *Triphala Churna* was administered; and in group C (combined group), *Pradhamana Nasya* was administered initially, followed by oral *Trayodashanga Kwatha* with *Madhu*. In group A, complete relief was observed in 10% of the patients; in group B, marked improvement was observed in 81.82% of patients; and in group C, marked relief was observed in 60% of patients. In comparison to other groups (Group A and Group B), Group C showed percentage wise better results in most of the symptoms.

Key words: *Dushta Pratishyaya*, chronic sinusitis, *Trayodashanga Kwatha*, *Pradhamana Nasya*

Introduction

Acharya Sushruta, while dealing with the diseases of the nose, devoted a separate chapter to *Pratishyaya* after explaining *Nasagata Roga* in detail.[1] This fact itself shows that *Pratishyaya* has been a major problem since ancient times.

Dushta Pratishyaya has not been mentioned as a separate disease but, rather, is considered to be the complication of different types of *Pratishyaya*.[1] *As Dushta Pratishyaya* is a serious and complicated condition, it is very difficult to treat. It can cause many complications, such as *Badhirya*, *Andhata*, *Ghrananasha*, etc.[2]

In general, the features of the disease *Dushta Pratishyaya* are similar to that of chronic sinusitis in modern science. Both these diseases are characterized by nasal blockage, nasal discharge, headache, anosmia, heaviness in the head, etc.[3]

As the nose is in direct contact with the external environment, it is exposed to the many microorganisms and pollutants present in the atmosphere. Due to the increase in environmental pollution and the busy lifestyles of today, rhinitis is a common disease in the present era.[4] Improper management of this stage leads to sinusitis, which may later lead to chronic sinusitis.[3] More than 120 million Indians suffer from at least one episode of sinusitis each year[4] and, according to the American Academy of Otolaryngology and Head and Neck Surgery, more than 37 million Americans suffer from at least one episode of sinusitis each year.[5] Jamnagar is a coastal city with many industries. Due to the air pollution, respiratory infections are common. A large number of patients with sinusitis also report to the ENT – *Shalakya*, OPD of IPGT and RA.

Once the sinuses are infected, improper management and poor dietary habits can lead the disease into a chronic phase.[3] This chronic sinusitis is too difficult to drain out completely. It remains as a focus of infection, leading to inflammation in all associated structures, e.g., the tonsils, ear, pharynx, larynx etc.[6] Ultimately, it may lead to complications such as otitis media, orbital cellulitis, osteomylitis, etc.[7] In modern medical science, a wide range of antibiotics and decongestants are available for the treatment of sinusitis.[8] But these drugs can help only in the initial stage. Once pus collection forms in the sinuses and is not drained spontaneously, only surgical intervention can help.[7] After drainage of the sinuses, antibiotics can help. FESS (functional endoscopic sinus surgery), Caldwell-Luc operation, Howarth's operation, etc., are

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the chief operative procedures to drain the sinus if conservative measures fail.[3] These surgical procedures are associated with many complications, including bleeding, oro-antral fistula, infraorbital anaesthesia, neuralgia, and paraesthesia.[7] The modern treatment modalities for chronic sinusitis are also expensive and not free from side effects. Also, frequent use of antibiotics leads to the gradual development of drug resistance. Moreover, no drug for treatment of allergy and viral infection is available in the modern science.

Acharya Sushruta has not clearly mentioned the line of treatment of *Dushta Pratishyaya*. The treatment advised by Vagbhattacharya for *Dushta Pratishyaya* is similar to that for *Rajayakshma* and *Krimi Roga*.[9] Among the various treatment modalities, *Nasya* is the chief procedure to drain *Doshas* from *Shirah*.[9]

Considering all these facts, we carried out this clinical trial to find out the best treatment protocol for the management of the *Dushta Pratishyaya*. As *Dushta Pratishyaya* is chronic stage of the *Pratishyaya* and *Kapha Dosha* is predominant in this condition, *Pradhamana Nasya* was selected as the chief *Shodhana* procedure in this study. *Trikatu* + *Triphala Churna* for *Pradhamananasya*[10] and *Trayodashanga Kwatha*[11] were selected. In the combination of Trikatu + *Triphala Churna*, *Triphala* neutralizes the *Tikshnata* of *Trikatu* and thus makes it easier for the patient to it. The main ingredient of *Trayodashanga Kwatha* is *Dashamula* and it is *Shothahara*, *Rasayana*, and *Tridoshashamaka*.[12,13]

For assessment of the results, we evaluated the subjective improvement in clinical features and, in addition, as an objective parameter, we measured C-reactive protein (CRP) levels, which is a biomarker of inflammation.

Aims and Objectives

1. To assess the role of *Trikatu* + *Triphala Churna* for *Pradhamana Nasya* in *Dushta Pratishyaya*
2. To assess the role of *Trayodashanga Kwatha* in *Dushta Pratishyaya*
3. To assess the combined effect of *Pradhamana Nasya* and *Shamana Aushadhi* in *Dushta Pratishyaya*.

Materials and Methods

Selection of patients

Subjects for the study were selected from among the patients attending the OPD/IPD of the Department of *Shalakya*, Institute for Post Graduate Teaching & Research in Ayurveda,Gujarat Ayurved University, Jamnagar. We used simple random sampling for selecting the subjects for the study.

Inclusion criteria: Patients having signs and symptoms of *Dushta Pratishyaya* (chronic sinusitis) and between the ages of 8 years and 80 years were selected for the study.

Exclusion criteria: Patients below 7 years and above 80 years; those having history of hypertension or diabetes mellitus; those with any chronic debilitating infectious disease; those with any inflammatory disease; and those requiring surgical treatment (e.g., for nasal polyp) were excluded from the study.

A proforma was prepared for data collection, incorporating all the relevant points from the point of view of both Ayurveda and modern medicine.

The trial drugs were prepared in the pharmacy of Gujarat Ayurved University.

Ethical clearance

The study protocol was cleared by the ethical committee of the Institute. Written consent was taken from each patient for participation in the study. Patients were free to withdraw from the study at any time without giving any reason.

Investigations

- Hematological examination: Total white blood cell count, differential count, erythrocyte sedimentation rate, hemoglobin, and absolute eosinophil count were checked; other investigations were done, if required.
- Urine examination: Routine and microscopic examination
- Radiological examination of paranasal sinuses
- Diagnostic nasal endoscopy
- C-reactive protein test (CRP test)[14]

Grouping

1. Group A *(Shamana Chikitsa)*
   Trayodashanga Kwatha orally
   Dose: 45 ml (approx) twice daily
   Duration: 45 days
   Sahapana: *Madhu*[15]

2. Group B *(Shodhana Chikitsa)*
   Pradhamana Nasya with *Trikatu* + *Triphala Churna*
   Lavana Siddha Tila Taila in *Purva Karma* for *Sthanika Abhyanga*[16]
   Dose for *Pradhamana Nasya*: 1–3 *Muchchuti* (250–750 mg)
   Duration: *Pradhamana Nasya* was given for a maximum seven sittings, with an interval of 1 day between each sitting.[17]

3. Group C (combined group): *Shodhana* + *Shamana Chikitsa*
   Pradhamana Nasya was given as described in group B. After completion of seven sittings of *Nasya*, *Trayodashanga Kwatha* with *Madhu* was given orally for 45 days.

Follow-up: All patients were asked to come for follow-up every 7 days for 1 month.

Criteria for assessment

The assessment was done by evaluating the changes in the signs and symptoms after treatment with the help of a suitable scoring method by giving score in the range 0 to 4. Changes in the value of CRP were also noted.

Overall effect of therapy

- Cured: 100% relief in signs and symptoms and no recurrence during the follow-up period
- Marked improvement: 76%–99% relief in signs and symptoms
- Moderate improvement: 51%–75% relief in signs and symptoms
- Mild improvement: 26%–50% relief in signs and symptoms
- Unchanged: Up to 25% reduction in signs and symptoms was noted as unchanged

Statistical analysis

The information, gathered on the basis of observations was subjected to statistical analysis and Student's paired '*t*' test was applied. For comparison between two therapies, Student's unpaired '*t*' test was applied. The results were interpreted at $P<.05$, $P<.01$, and $P<.001$ significance levels.

Observations

The study was conducted on 37 patients who were randomly allotted into three groups.

Status	Group A	Group B	Group C	Total
Registered	13	14	10	37
Completed	10	11	10	31
Dropout	3	3	0	6

In the present study, the majority of the patients, i.e., 43.24%, were in the age-group of 21–30 years; 54.05% were females; 40.54% were doing house work; 72.97% were from polluted surrounding; 94.59% had the history of taking allopathic treatment; 100% were taking *Viruddhashana*; 45.94% were having *Vata Kapha Deha Prakriti*. Among the patients, 56.75% had turbinate hypertrophy, 45.94% had congestion of the nasal mucosa, 67.56% had deviated nasal septum, 62.16% had watery nasal discharge, and 21.62% had purulent nasal discharge. On examination, there was swelling over the right maxillary sinus in 5.40% of the patients and over the left maxillary sinus in 8.10% of the patients. There was tenderness on palpation over the left frontal sinus in 43.24% of patients, over the right frontal sinus in 40.54%, over both maxillary sinuses in 35.13%, over the left ethmoidal sinus in 21.62%, and over the right ethmoidal sinus in 16.21%. X-ray PNS showed haziness in the right frontal sinus in 86.48%, in the left frontal sinus in 72.97%, in the right maxillary sinus in 81.08%, in the left maxillary sinus in 67.56%, and in both ethmoidal sinuses in 8.10% of the patients. All the patients (100%) in the study had *Nasasrava* (nasal discharge) as the chief complaint. Postnasal drip and *Nasavarodha* (nasal blockage) were observed in 97.29% of the patients. *Shirahshula* (headache), *Shirogaurava* (heaviness in head), and *Swarabheda* (change of voice) were observed in 91.89%, 78.37%, and 70.27% of the patients, respectively. *Kshavathu* (sneezing) was observed in 67.56% of the patients, *Ghranaviplava* (loss of smell) in 64.86%, *Mukhadaurgandhya* (halitosis) in 59.45%, *Kasa* (cough) in 45.94%, *Aruchi* (anorexia) in 40.54%, and *Jwara* (fever) in 27.02% of the patients.

Results

Effect of therapy on symptoms

Group A showed better results than the other groups in *Nasasrava* (100%), *Kshavathu* (100%), and *Swarabheda* (100%). Group B showed better results than the other groups in *Shirahshula* (100%), *Kasa* (100%), and *Mukhadaurgandhya* (91.66%). Group C showed better results than the other groups in postnasal drip (PND) (85.71%), *Shirogaurava* (94.73%), and *Aruchi* (100%) [Table 1].

In *Nasavarodha*, groups A and B showed almost equal results, i.e., 95% and 95.83%, respectively. Groups A and B showed equal results in *Ghranaviplava* (100%). All three groups showed equal results in *Jwara* (100%).

Effect of therapy on x-ray findings

In opacity of sinuses, group A showed statistically highly significant result in both maxillary and right frontal sinuses, group B showed highly significant result in both maxillary and frontal sinuses and group C showed highly significant results in both frontal sinuses. In ethmoid sinuses, percentage wise group A showed better results than group C but the results are statistically insignificant [Table 2].

Effect of therapy on tenderness over sinuses

Though percentage wise Group A and Group C showed better result in comparison to Group B in tenderness on Frontal, maxillary and ethmoid sinuses, the results are insignificant, whereas result of Group B in Frontal sinuses are highly significant and in maxillary sinuses are significant [Table 3].

Effect of therapy on hematological values

The total leucocyte count was reduced by 12.44% in group C. Reduction of absolute eosinophil count was by 12.69% in group C and by 1.78% in group B. Erythrocyte sedimentation rate (ESR) decreased by 27.5% in group B and by 6.66% in group A; the ESR increased by 35.02% in group C. CRP was decreased by 71.25% in group C, by 42.56% in group A, and by 1.91% in group B. In this study, a total 13 (41.94%) patients in the three groups showed increase in the CRP after treatment (as compared to the values before treatment) though in all cases the increased values were almost within normal range. All these patients, however, had symptomatic relief. The increase in CRP was more common in group B (*Pradhamana Nasya*) and was elevated beyond the normal range in some patients. Possibly, the oral drug (*Trayodashanga Kwatha*) given in the other two groups (Group A and Group C) has an anti-inflammatory action and benefit of this drug was not available to the patients in group B; that may be the reason for increase of CRP level more in patients of Group B [Table 4].

The changes in hematological values are statistically nonsignificant but all patients had good relief in symptoms. Probably the time period was short for changes to be seen; further studies with longer duration of treatment may provide the answer.

Total effect of therapy

In group A, complete relief was observed in 10% of the patients, marked relief in 70% of the patients, and moderate relief in 20% of the patients. In group B, marked improvement was observed in 81.82% of the patients and moderate improvement was observed in 18.18% of the patients. In group C, marked relief was observed in 60% of the patients, moderate relief in 30% of the patients, and mild relief in 10% of the patients.

Discussion

Selection of the problem

Changing lifestyles, increased pollution, rapid urbanization, and increase in resistance to antibiotics are responsible for the increased prevalence of upper respiratory tract infections. The incidence of upper respiratory tract infection is very high in India. The most common problem related to upper respiratory tract is *Pratishyaya* or rhinitis which in the later stage converts

Table: 1 Effect of therapy on symptoms

Symptoms	Group A			Group B			Group C		
	(%) Relief	*t*	*P* value	(%) Relief	*t*	*P* value	(%) Relief	*t*	*P* value
Nasa Srava	100	10.58	<.001	82.60	11.85	<.001	90	6.19	<.001
Kshavathu	100	7.4	<.001	95.65	17.39	<.001	82.35	3.06	<.05
Nasavarodha	95	6.86	<.001	95.83	10.40	<.001	88.23	7.07	<.001
Shirashula	86.95	8	<.001	100	13.00	<.001	91.66	8.81	<.001
Swarabheda	100	10.61	<.001	94.44	6.68	<.001	94.44	11.12	<.001
Gandhaviplava	100	11	<.001	100	6.58	<.001	72.22	3.31	<.05
Postnasal drip	78.94	5.77	<.001	74.07	9.04	<.001	85.71	7.21	<.001
Shirogaurav	85.71	13.74	<.001	83.33	5.55	<.001	94.73	9	<.001
Jwara	100	4	>.05	100	4	>.05	100	5	<.05
Kasa	62.5	3.16	<.01	100	5.36	<.01	90	3	>.05
Aruchi	75	3.08	>.05	50	1	>.05	100	6.32	<.01
Mukhadaurgandhya	50	4	>.05	91.66	11	<.001	100	4.89	<.05

Table: 2 Effect of therapy on X-ray findings

Sinuses		Group A			Group B			Group C		
		(%) Relief	*t*	*P* value	(%) Relief	*t*	*P* value	(%) Relief	*t*	*P* value
Frontal sinus	Right	54.54	4.58	<.01	46.15	3.67	<.001	50	7	<.001
	Left	28.57	0.79	>.05	80	4.43	<.01	54.54	6	<.001
Maxillary sinus	Right	83.33	7.07	<.001	42.85	3.6	<.01	46.66	2.8	>.05
	Left	50	4	<.01	83.33	7.24	<.001	44.44	1.92	>.05
Ethmoid sinus	Right	100	3	>.05	-	-	-	75	3	>.05
	Left	100	3	>.05	-	-	-	25	1	>.05

Table: 3 Effect of therapy on tenderness over the sinuses

Sinuses		Group A			Group B			Group C		
		(%) Relief	*t*	*P* value	(%) Relief	*t*	*P* value	(%) Relief	*t*	*P* value
Frontal sinus	Right	100	3	>.05	91.66	10.04	<.001	100	3.46	>.05
	Left	100	5	<.05	91.66	10.04	<.001	100	3.46	>.05
Maxillary sinus	Right	100	4	>.05	83.33	5	<.05	100	3.46	>.05
	Left	100	4	>.05	83.33	5	<.05	100	3.46	>.05
Ethmoid sinus	Right	100	3	>.05	75	3	>.05	100	3	>.05
	Left	100	3	>.05	75	3	>.05	100	3	>.05

Table: 4 Effect of therapy on hematological values

Hematological values	Group A			Group B			Group C		
	(%) Relief	*t*	*P* value	(%) Relief	*t*	*P* value	(%) Relief	*t*	*P* value
TLC (per cu mm)	4.58↓	1.36	>.05	2.54↓	0.416	>.05	12.44↓	1.73	>.05
Absolute eosinophil count	12.5↑	-0.37	>.05	1.78↓	0.17	>.05	12.69↓	1.10	>.05
ESR (mm/h)	6.66↓	0.61	>.05	27.5↓	1.59	>.05	35.02↑	-1.25	>.05
C-reactive protein (CRP)	42.56↓	1.07	>.05	1.91↓	0.09	>.05	71.25↓	1.29	>.05
Lymphocyte (%)	1.5↓	0.95	>.05	2.53↑	-0.60	>.05	13.55↑	-2.07	>.05
Neutrophil (%)	1.3↑	-1.47	>.05	1.61↓	0.66	>.05	8.52↓	2.10	>.05
Hb (gm%)	3.67↓	1.74	>.05	2.35↓	1.15	>.05	2.52↓	1.40	>.05

into *Dushta Pratishyaya* or chronic sinusitis. In modern medical science, a wide range of effective antibiotics and decongestants are available. But these drugs can help only in the initial stage; if pus collection forms in the sinuses and does not drain spontaneously only surgical intervention can help. After drainage of the sinuses, antibiotics can help. The surgical procedures may themselves lead to complications. The modern medical treatment modalities for chronic sinusitis are expensive and not

free from side effects. Also, frequent use of antibiotics leads to the development of drug resistance. Moreover, no effective drug for allergy and viral infection is available in the modern science.

Hence, we felt the need to derive a treatment protocol that would help drain the sinuses, remove the pathology, and promote immunity.

Selection of drug

The main treatment for accumulated *Doshas* in *Dushta Pratishyaya* is *Shodhana Nasya*. Hence, *Pradhamana Nasya*, which is the best among all the *Shodhana Nasya*, was selected for this study. Acharya Charaka has advised a combination of *Trikatu* and *Triphala Churna* for *Pradhamana Nasya* in the context of *Pratishyaya Chikitsa*. *Trikatu* has *Katu Rasa*, *Laghu* and *Tikshna Guna*, *Katu Vipaka*, *Ushna Veerya*, *Vata-Kaphashamaka*, *Shothahara*, *Sroto Shodhana*, *Vatanulomana*, *Lekhana*, *Kaphanissaraka*, *Shleshmahara*, anti-inflammatory, antibacterial, antirhinoviral, and immunostimulatory properties.[18] *Triphala* has *Ruksha Guna* and *Tridoshashamaka* as well as *Sroto Shodhana*, *Shothahara*, *Vatanulomana*, *Kaphanissaraka*, antibacterial, anti-inflammatory, and immunomodulatory properties.[18] All these properties of *Trikatu* + *Triphala Churna Yoga* help to remove the pathology and promote local immunity. Thus, *Trikatu* + *Triphala Churna* was selected for *Pradhamana Nasya* in the present study.

For *Abhyanga* in *Purva Karma* of *Nasya*, *Saindhava Taila* was selected which is described by Acharya Sushruta in the context of *Shwasaroga Chikitsa*. *Saindhava* and *Tila Taila* have *Snigdha Guna* and *Tridoshashamaka* properties[18] *Saindhava* also has *Sukshmasrotogami* properties[19] by which it reaches the minute channels. Hence, *Saindhava Taila* was selected for *Abhyanga* as the *Purvakarma* of *Pradhamana Nasya* in the present study. *Swedana Karma* (which is also done in *Purva Karma*) causes liquefecation of the accumulated *Doshas* especially vitiated *Kapha*.

Acharya Vagbhatta has stated that *Dushta Pratishyaya* should be treated similar to *Yakshma*. Thus, *Trayodashanga Kwatha* was selected here, which is mentioned in Bhaishajya Ratnavali in the context of *Rajayaksma*. *Trayodashanga Kwatha* includes *Dashamula*, *Shunthi*, *Pippali*, and *Dhanyaka*. Most of the ingredients of this *Yoga* have *Katu*, *Tikta*, *Kashaya Rasa*; *Laghu*, *Ruksha*, *Tikshna Guna*; *Katu Vipaka*; *Ushna Veerya*; *Deepana*, *Pachana*, *Shothahara*, *Sroto Shodhana*, *Kaphaghna*, *Jwarahara*, *Vatanulomana*, *Shulaprashamana* properties. It also has antimicrobial, anti-inflammatory and immunostimulatory property.[20] Dashamoola is also accepted as *Shothahara Kashaya* by *Acharya Charak*. Hence *Trayodashanga Kwatha* can be used to manage *Dushta Pratishyaya*. Because of having all these properties it causes *Sampraprti Vighatana* and treats the disease.

Again sinusitis is the inflammation of sinus mucosa and Acharya Charaka has accepted *Dashamula* as *Shothahara Kashaya*. In this context *Trayodashanga Kwatha* is also indicated in *Pratishyaya*.

In this study, *Madhu* (honey) was selected for the *Sahapana* of *Trayodashanga Kwatha*. Acharya Sharangadhara has advised *Madhu* as *Sahapana* in *Kashaya* in *Vata Kaphaja Vikara*. Also By the virtue of *Laghu*, *Ruksha Guna*; *Katu Vipaka*; *Tridoshashamaka*; *Lekhanakaraka*, *Chhedana*, *Yogavahi*, and *Sukshmamarganusari* properties[21] *Madhu* directly acts on the *Vikrita Kapha* besides being a vehicle for the *Aushadhi Dravya*.

Observations

In present study most of the patients (97.29%) were taking *Sheetambu*, followed by 64.86% who were taking *AtiGuru Ahara*, and 59.45% *Vishamashana*. The *Aharaja Nidanas* are a reflection of the changing and busy lifestyles of today and play a role in the pathogenesis of the disease.

The data of *Viharaja Nidana* reveals that all the patients showed increase of symptoms in *Ritu Vaishamya* and *Ritu Sandhi*, whereas *Raja Sevana* was found in 78.37% and *Dhuma Sevana* in 72.97% of the patients. Here, *Ritu Vaishamya* and *Ritu Sandhi* are such etiological factors which are very difficult to avoid and *Raja-Dhuma Sevana* are also very difficult to avoid all the time for all persons and these etiological factors are described as *Sadyojanak Nidan* for *Pratishyaya* by *Acharya Sushruta*. These observations reveal that the area of this study is prone to atmospheric pollution. Chronic contact with such unavoidable *Hetus* will nullify the effect of the therapy. This could be the reason why patients were not getting relief even after taking treatment for many years.

Krodha as *Manasika Nidana* was observed in the maximum numbers of the patients (67.56%). It is also reflection of the *Prakriti* of the patients and also today's lifestyles. This also plays major role in the pathogenesis of the disease.

In *Kasa*, group B showed better results. This may be due to the sudden reduction of postnasal drip due to the treatment. In *Mukhadaurgandhya* also, group B showed better results, which suggests that *Pradhamana Nasya* is very effective for removing *Dushta Kapha* quickly.

When we used Student's unpaired '*t*' test to compare the results in the combined group with that in the *Trayodashanga Kwatha* group, there is no statistically significant difference between the groups in the relief obtained in any of the symptoms. However, on analyzing the percentage of relief obtained, combined therapy gives better results in *Shirahshula*, postnasal drip, *Shirogaurava*, *Kasa*, *Aruchi*, and *Mukha Daurgandhya* than does *Trayodashanga Kwatha* alone.

On comparing the Group C (Combine therapy) with Group B (*Pradhamana Nasya*), Group C showed better (highly significant) results in *Kasa* and *Mukha Daurgandhya* and significantly better results in postnasal discharge. In other symptoms like *Nasasrava*, *Shirogaurav* and *Aruchi*, symptom wise Group C showed better results than Group B but the difference is statistically insignificant.

Better results in the *Sarvadehika Lakshanas* were also seen in the combined group. the combined group also showed less recurrence of the symptoms after completion of treatment as compared to the other two groups. This may be due to an immunomodulatory property of the drug. Recurrence was more common in group B than in the other groups. This may be due to incomplete *Shodhana*. While *Nasya* will relieve the local pathology, the general vitiation of *Doshas* and *Agni* is not dealt with efficiently; hence, though rapid symptomatic relief may be seen after *Nasya*, recurrence can occur.

The variations in the results also depend upon the chronicity of the disease, effect of the weather, and the *Bala* of the

individuals. It also depends upon the *Bhishagvashyata* of the patients.

Mode of action of *Nasya*

In *Purva Karma* of *Nasya*, *Abhyanga* and *Swedana* is done. *Abhyanga* causes *Mruduta* of *Doshas* and *Swedana* causes *Vilayana* (liquification) of accumulated *Doshas*. In the language of modern science, *Abhyanga* and *Swedana* increases the local blood supply and *Swedana* also liquefies the mucous. Due to vasodilatation the permeability of blood vessels increases, which makes the drug absorption faster.

In *Pradhana Karma*, the drug in *Churna* form is administered into the nostrils through *Pradhamana Nadiyantra* in the head-low position of the patient. Thus, the drugs reach the *Shringataka* and from there, through different *Siras*, it spreads to other parts like *Netra*, *Shirah*, etc. and removes the morbid *Doshas*.[22] By the properties of drug, it causes *Srotoshuddhi* and makes the *Anulomana Gati* of *Vayu* (mitigation of *Vayu*), which is hampered in *Dushta Pratishyaya*.

In *Pashchata Karma*, *Urdhvanga* massage and *Swedana* helps to drain out the *Doshas* and *Swedana* also causes *Srotomukhavishodhana*.

In addition, the drug compound has *Srotoshodhana*, anti-inflammatory, antibacterial, etc., properties, which help to treat the disease.

Mode of action of *Trayodashanga Kwatha*

Most of the ingredients in *Trayodashanga Kwatha* are *Katu, Tikta Rasa Pradhan; Laghu, Ruksha, Tikshna Guna Pradhana* and having *Ushna Veerya, Katu Vipaka; Vatanulomana, Shothahara*, and *Srotoshodhana* properties. All these properties are very useful to remove the *Srotorodha* and promote the expulsion of vitiated *Kapha* from the sinuses. The *Deepana* and *Pachana* properties of *Trayodashanga Kwatha* cause *Amapachana*. By *Amapachana* and also *Dhatvagnideepana*, the *Sara Dhatus* are formed properly (*Samyaka*), which increases the *Vyadhikshamatva* (immunity). *Vedanasthapana*, *Kasahara*, *Kanthya*, etc., properties provide symptomatic relief. The anti-inflammatory properties of the ingredients reduce the inflammatory process in the nose and paranasal sinuses. The antibacterial activity arrests secondary infection and prevents recurrence of the disease.

Conclusion

Each of the three groups showed better results relative to the other two in different symptoms. In comparison to other groups (Group A and Group B), Group C showed percentage wise better results in most of the symptoms.

The recurrence rate in the combined group was significantly lower than in the other groups. Better results in the *Sarvadehika Lakshanas* were also seen in the combined group. For good and long-lasting results Shodhana or *Shamana* therapy alone will not be adequate. A combination of *Shodhana* and *Shamana* therapy will yield better and longer lasting effects.

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हिन्दी सारांश

प्रधमन नस्य और त्रयोदशांग क्वाथ का दुष्ट प्रतिश्याय–जीर्ण साइनुसाइटिस के उपचार में योगदान

वर्षा चौधरी मंजूषा राजगोपाल सेजल मिस्त्री डी.बी.वाघेला

दुष्ट प्रतिश्याय, प्रतिश्याय की एक चिरकालीन अवस्था है जो प्रतिश्याय की अवगणना अथवा अनुचित चिकित्सा से होती है। आधुनिक विज्ञान में, जीर्ण साइनुसाइटिस की लक्षण व चिह्न के आधार पर दुष्ट प्रतिश्याय से तुलना की जा सकती है। परिवर्तित जीवनशैली, शहरीकरण और एन्टिबायोटीक्स से प्रतिरोध, साइनुसाइटिस की वृद्धि के कारण हैं। प्रस्तुत चिकित्सकीय अध्ययन में कुल ३७ रुग्णों को पंजीकृत किया गया। जिसमें से ३१ रुग्णों ने चिकित्सा पूर्ण की और उन्हें ३ वर्गों में विभाजित किया गया। वर्ग ए में त्रयोदशांग क्वाथ मधु के साथ दिया गया, वर्ग बी में त्रिफला + त्रिकटु का प्रधमन नस्य और वर्ग सी में प्रधमन नस्य के बाद मधु के साथ त्रयोदशांग क्वाथ दिया गया। वर्ग ए में, १०% रुग्णों में पूर्ण लाभ, वर्ग बी में –८१.८२ % रुग्णों में मध्यम लाभ और वर्ग सी में ६०% रुग्णों में मध्यम लाभ प्राप्त हुआ। दूसरे वर्गों की तुलना में वर्ग सी में प्रतिशत अनुसार लक्षणों में अधिक परिणाम प्राप्त हुआ।